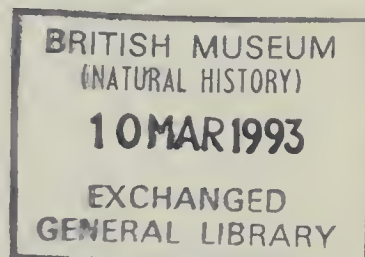


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Spanioza tamaninii sp. n., from Trentino (NE Italy) (Homoptera Psylloidea)

Abstract — *Spanioza* Enderlein is considered as a valid genus, specialized on Rubiaceae. The new Triozid was collected in July and August in few adults on Dolomites of Fassa, Ciampedie, 1950 m, and on Mount Penegal, 1700 m. The species is similar to *S. galii*, *S. rubiae* (comb. n.) and *S. rubicunda* (comb. n.) for the morphology of the adult and the egg; it is very distinct from the great reduction of the hindwings (the single case in Italian psyllids) and for the parameres. The host plant is probably *Galium anisophyllum*. The nymph is unknown. Twenty-one drawings are reported.

Riassunto — *Spanioza tamaninii* sp. n., del Trentino (Italia Nord-orientale) (Homoptera Psylloidea).

Spanioza Enderlein è considerato genere valido, limitato alle Rubiaceae. Il nuovo Triozide fu rinvenuto in luglio ed agosto in pochi es. adulti sulle Dolomiti di Fassa a Ciampedie, m 1950, e sul M. Penegal, m 1700. È affine, nell'adulto e nell'uovo, a *S. galii*, *S. rubiae* (comb. n.) e *S. rubicunda* (comb. n.). È ben distinto per la forte riduzione delle ali posteriori (caso unico fra le psille italiane) e per i parameri. La pianta nutrice primaria è probabilmente il *Galium anisophyllum*. Ninfe sconosciute. Il lavoro è corredato da 21 figure.

Résumé — *Spanioza tamaninii* sp. n., du Trentino (Italie du Nord Est) (Homoptera Psylloidea).

Spanioza Enderlein est considérée un genre valide, limité aux Rubiaceae. Le nouveau Triozide a été trouvé en Juillet et en Août avec peu d'exemplaires adultes sur les Dolomites de Fassa, à Ciampedie, m 1950, et sur M. Penegal, m 1700. L'adulte et l'oeuf sont semblables à ceux de *S. galii*, *S. rubiae* (comb. n.) et *S. rubicunda* (comb. n.). La nouvelle espèce est bien distincte pour une grande réduction des ailes postérieures (cas unique parmi les psylles italiennes) et pour les paramères. La plant hôte est probablement *Galium anisophyllum*. Larves inconnues.

Key words: Insecta, Psylloidea, *Spanioza*, NE Italy.

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The genus *Spanioza* Enderlein, 1926

The genus *Spanioza* was described by Enderlein (1926: 400) (Type species *Trioza galii* Förster) for the Triozidae with the Rs vein short, concave or almost straight. Enderlein ascribed to *Spanioza* 24 very different species from all over the world; therefore *Spanioza sensu* Enderlein is polytypic, without phyletic value.

The genus was synonymized by Tuthill (1943: 526) with *Trioza*. *Trioza* is a very large and heterogeneous genus, but its division in genera is difficult, especially if the problem is considered in world scale.

However, as the type species of *Spanioza* is the palaearctic *Trioza galii*, very different from *Trioza urticae* (the type species of *Trioza*), I think opportune to revalidate *Spanioza*, with the restriction to the type species and to few similar species. The attribution of other species listed by Enderlein to *Spanioza* is not acceptable or requires a careful study.

Spanioza sensu novo can be definite for the presence of the following characters: 1) *Habitus* characteristic, with shining black general colouration. 2) Forewings with uniformly convex anterior margin, pointed apex and Rs vein strongly concave, short and ending clearly before the bifurcation of M. 3) Apex of metatibia with 3+1 spurs (sometimes 2+1). 4) Parameres stumpy, with broad base. 5) Terminal expansion of the penis with an anterior great lobe, apparently with apex not bipartite. 6) Terminalia of the female stumpy, with subquadrate subgenital plate. 7) Egg long and narrow, with short centrobasal stalk and without micropyle (III type of Loginova 1979). This character is very important, because it would seem exclusive of this taxon and of the well separate genus *Eryngiophaga*. 8) Host plant genera *Galium*, *Rubia* and *Sherardia* (Rubiaceae).

The nymphs however seem to be of the normal trioqid type; but there is only the old description by Boselli (1929) regarding *S. galii aspino-velutina*.

Also the life-history probably is characteristic, with overwintering sometime as nymph, behaviour very rare in Palaearctic Triozidae. The only notice however is by Boselli (1929).

S. galii is among the few European psyllids with nymphs living in galls of rolled leaves and also in subterranean galls (Docters van Leeuwen, 1937: 78).

For the above characters I ascribe the following species to *Spanioza* (*sensu stricto, novo*):

1. *Trioza galii* Förster, 1848: 87 (type species) and its «formae». Host plants: *Galium* spp., *Rubia peregrina*, *Sherardia arvensis*. Distribution: Palaearctic. The taxon requires a revision.
2. *Trioza rubiae* Baeva, 1972: 63; Baeva, 1985: 294. Host plant: *Rubia florida*. Distribution: USSR, Turkmen SSR. *Comb. n.*
3. *Trioza rubicunda* Loginova, 1978: 111. Host plant: *Galium* sp. Distribution: USSR: Kazakh SSR. *Comb. n.*
4. *Spanioza tamaninii* sp. n. Probable host plant: *Galium anisophyllum*. Distribution: NE Italy.

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EXCHANGED
GENERAL LIBRARY**Spanioza tamaninii sp. n.****Description of the adult**

Both sexes are similar in aspect; they differ in colouration and in the terminalia.

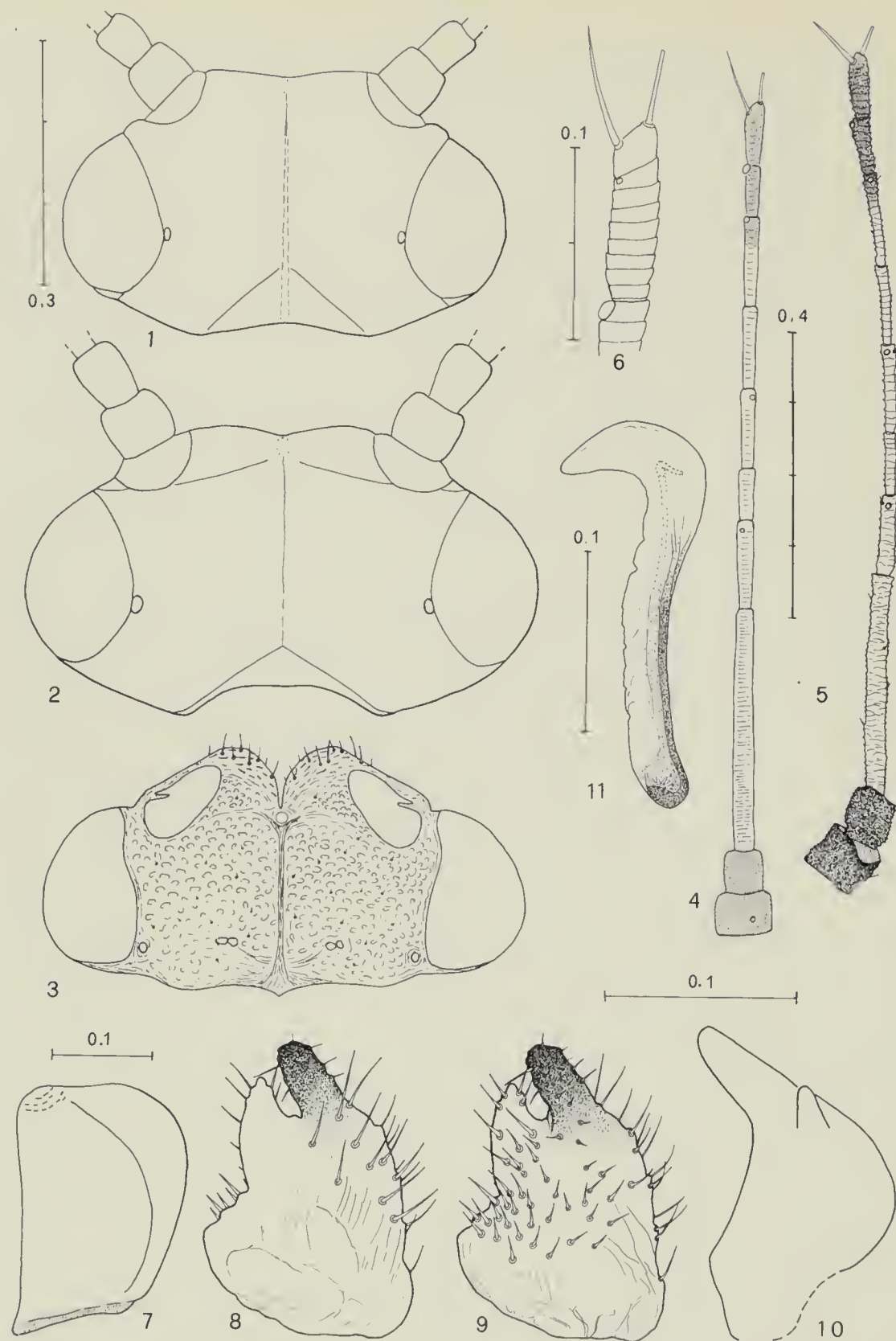
Colouration - Male. General colouration shiny black. Antennae with I and II segments black, III-VII and a part of the VIII white; the apical part of the VIII segment, the IX and X black. Thoracic pleurites and sternites brown; forewings hyaline, transparent, with a showy dark spot between the clavus and the lower margin, for half the length of the anal vein; vein C+Sc initially blackish, then brown; vein R+M+Cu₁ whitish; other veins light brown or yellowish; hindwings milkish, with a costal zone and a great anal zone brown; legs with black femura; tibiae and tarsi whitish.

The female has a similar colouration, but lighter. She differs for: head and thorax brown-rusty; antennae with segments I-II dark brown; abdomen dark brown; abdominal pleurites reddish; the last sternite light brown; forewings with C+Sc at the base brown, then yellowish; other veins white-yellowish; hindwings with the brown costal spot less evident; legs with brown femura.

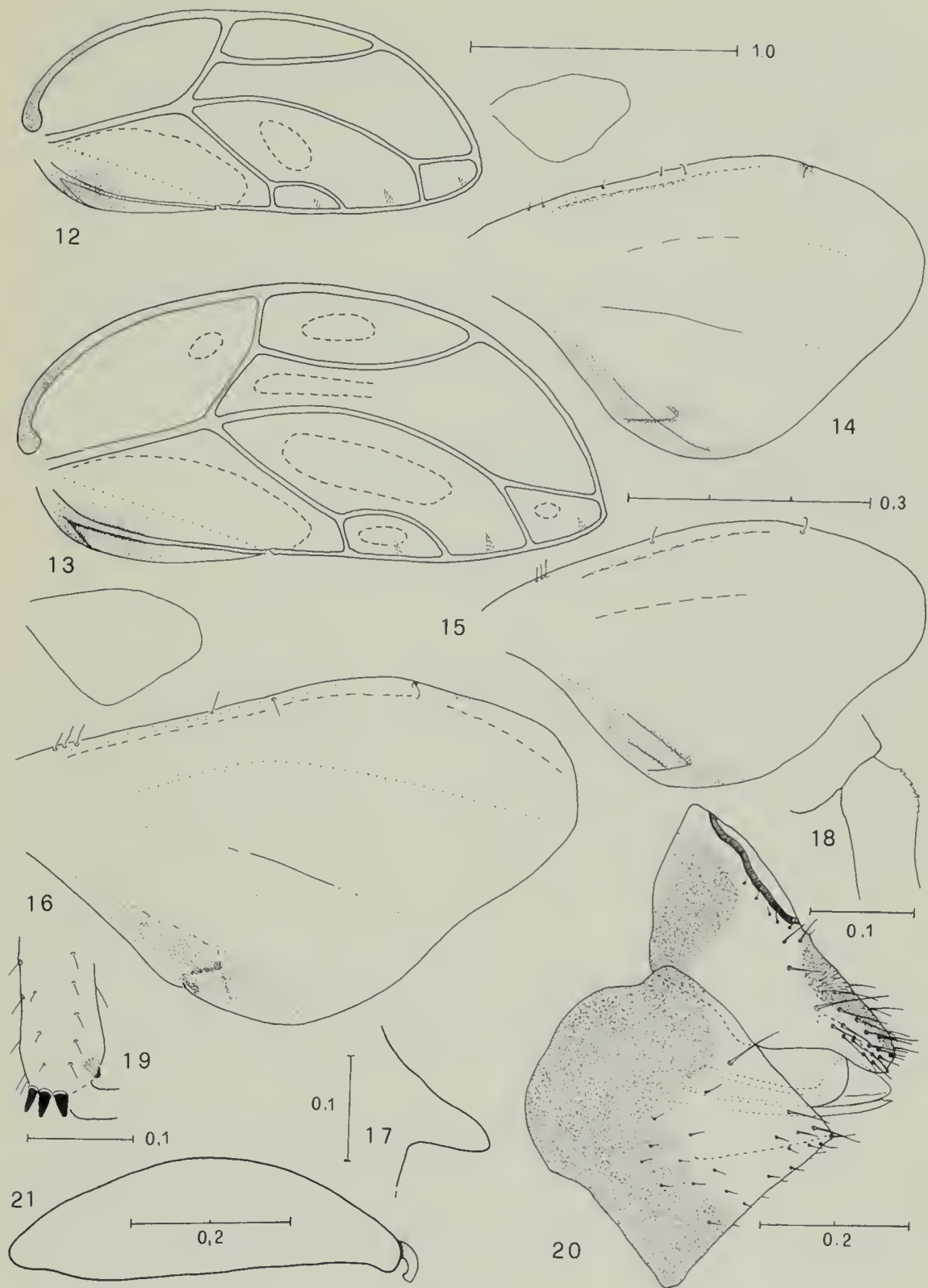
Structure - Head as in figs. 1-3. Vertex with the depression on each half slightly distinct. Genal cones very little, not visible from above if the head is in the microscopical slide (figs. 1, 2); the head in this case has a low bent position, slightly different than in the most part of other Triozidae; the lateral ocelli appear situated much forward. The normal position of the ocelli is possible only with an artificial movement of the head; with the head less inclined downwards (fig. 3), the genal cones appear as two little rounded prominences, with broad basis. Antennae (figs. 4, 5) enough long: they are about twice longer than the head width; little rhinaria on the segments IV, VI, VIII and IX; the segments I and X have each one a little sensitive pore.

Pronotum slightly narrower than the head; mesopraescutum about as wide as the head. Forewings (figs. 12-13) strong, relatively short, with slightly pointed apex. Maximum length of the wing a little below the end of the M₁₊₂ vein. All veins are strong and large. Vein Rs very short and uniformly bent, ending well before the M bifurcation. The cells m₁₊₂ and r₁ smaller in the male than in the female. The microsculpture is different between male and female. The spinules in the male are present only on the whole cu₂ cell, thicker on its proximal part; they are also present, but scattered, in the m₃₊₄ cell; only very few spinules are in the other cells. The spinules in the female are present on the contrary in all cells, thin and distant from the veins, except that in cu₂ cell, where they are thick in its proximal part. Radular spinules evident.

Hindwings (figs. 14-16) very little: their length is about a third of the length of the forewings, with an aberrant form because of the very large anal part. There is, more or less evident, in the central-lower part of the hindwing, a brown structure apparently chitinized; this structure has the form of the sign ≠ and consists of a little bar, oblique from the external margin of the wing toward the wing apex, and of two other brown lines, parallel and intersecting. Microsculpture thin on the whole surface. Meracanthus as in fig. 17. Base of metatibia as in fig. 18; apex of metatibia (fig. 19) with 3+1 short black spurs and with about 15 yellow strong hairs.



Figs. 1-11 — *Spanioza tamaninii* sp.n.. 1) head of male, dorsal view, in normal position in the microscopical slide; 2) head of female, id.; 3) head of female in another position, less inclined downward, showing the maximum size of the genal cones; 4) antenna of the male; 5) antenna of the female; 6) antenna of the male, last segment; 7) proetiger of the male; 8) paramere, outer surface; 9) paramere, inner surface; 10) paramere, oblique view; 11) distal aedeagal segment (Figs. 3, 5, 8, 9 and 11 are drawn by Dr. C. Rapisarda).



Figs. 12-21 — *Spanioza tamaninii* sp.n. 12) male forewing; on the right, hindwing with the same magnification; 13) female forewing; below, hindwing with the same magnification; 14-15) male hindwings; 16) female hindwing; 17) male meracanthus; 18) base of male metatibia; 19) apex of male metatibia; 20) terminalia of the female; 21) egg (Figs. 20 and 21 are drawn by Dr. C. Rapisarda).

Male terminalia with proctiger (fig. 7) slightly expanded posteriorly. Parameres little, stumpy, in lateral view as in figs. 8-9; the apical posterior part is fingerlike, with parallel sides, and is bent forwards; anteriorly and subapically there is an evident subtriangular and shorter apophysis. This apophysis, in diagonal view (fig. 10), has very different aspects as regards the visual angles. The external surface of the parameres has few strong and posterior hairs; the internal surface has many hairs. Last segment of the penis (fig. 11) with a prominent anterior apical expansion, very thin and transparent; it looks like the penis of *S. galii*.

Terminalia of the female (fig. 20) stumpy and short. Anus long and apex of the proctiger rounded. Subgenital segment great, subquadrate and similar to *S. galii*.

Measurement, in mm: total length (body + wings in resting position): males 2.2-2.4; females 2.6;
head width: males 0.54-0.58; females 0.59-0.63;
antennal length: males 1.12-1.20; females 1.23-1.27;
antennal apical setae length, respectively: 0.038-0.051; 0.069- 0.075;
forewing length: males 1.67-1.89; females 2.16-2.20;
forewing width: males 0.72-0.88; females 0.90-0.92;
hindwing length: males 0.53-0.60; females: 0.62-0.70;
hindwing width: males 0.32-0.38; females 0.40-0.43;
proctiger length: males 0.28-0.30; females: 0.42-0.44;
paramere length: 0.15-0.17;
distal aedeagal segment length: 0.21-0.25.

Ratios: antennal length/head width: males 2-2.8; females 1.94-2.03;
forewing length/forewing width: males 2.16-2.36; females 2.15- 2.35;
forewing length/head width: males 2.98-3.37; females 2.15-2.35;
hindwing length/hindwing width: males 1.53-1.66; females: 1.63- 1.75;
relative length of flagellar antennal segments from base to apex: 1:0.4:0.3:0.4:0.4:0.3:0.3.

Typic material and localities – All the material was collected by C. Conci.

Holotypus ♂ from NE Italy, Region Trentino-Alto Adige, Province Trento (TN), Comune Vigo di Fassa, mountain group Dolomites of Fassa, locality Ciampedie, near the Negritella Refuge, m 1950, 12.VIII.1989, on a grassy and stony slope; preserved dry in the Natural History Museum of Milan.

Allotypus ♀ from the same locality and date, preserved in alcohol in the Conci collection.

Paratypes – From the same locality: 2 ♂♂, same data, on *Athamanta cretensis*, on slide; 1 ♀ 27.VII.89, on grassy slope, on slide; 1 ♂ 20.VII.90, on *Galium anisophyllum*, preserved dry; 1 ♂, 1 ♀, 13.VIII.90, on grassy and stony slope, preserved dry. From Province Trento, Commune Ruffré, locality Mount Penegal, m 1770 (about 35 km W from the preceding station), 1 ♀ with eggs in the abdomen, 5.VII.90, on meadow (on slide). One ♂ *Paratypus* in British Museum Nat. Hist.; one ♀ *Paratypus* in the Tamanini collection; the other *Paratypes* in the Conci collection.

Derivation of the name. From Mr. Livio Tamanini, past Director of the Museo Civico of Rovereto, my teacher and friend, illustrious specialist of Heteroptera and colleague in the study of Italian Psylloidea, with whom I conducted very numerous researches.

Preimaginal stages

Egg (fig. 21). I know only few eggs, present in the abdomen of the female found on Mount Penegal the 5.VII.90. The egg is long and narrow (length without stalk mm 0.50-0.67; width mm 0.14-0.21) and has a strong, short and curved stalk. The egg belongs to III type of Loginova (1979) and is similar to those of *S. galii*, *S. rubiae* and *S. rubicunda*.

Nymph unknown.

Host plant and life history

Of the 9 adult specimens of this species till now known, 3 were collected on grassy slope, 2 on stony slope, one on a meadow, 2 on *Athamanta cretensis* L. (Umbelliferae) and 1 on *Galium anisophyllum* Vill. (Rubiaceae). *Galium anisophyllum* is the most probable host plant, for the affinities of *S. tamaninii* with *S. galii*.

All the captures were effectuated in July and August. We cannot report anything on the life history, but no specimen was collected beating the branches of conifers. Perhaps the species overwinters as nymph in underground galls?

Distribution and biotopes

The two localities of capture were precised in the paragraph «Type material and localities». Only a single specimen was found in a small meadow with conifers on Mount Penegal (NW Trentino). The other eight ones were collected on Ciampedie, in a very limited area of few hundred square meters. The latter biotope is a dolomitic steep slope with grass, stones and conifers. In this locality we looked for psyllids at most 15 times, from 1985. Only starting from 1989 I found this species, which appears to be very rare. In the same biotope *Cyamophila prohaskai* is very common and *Trioza tripteridis* not rare.

Affinities

Spanioza tamaninii is immediately recognizable for the very little hindwings. In West Palaearctic fauna only *Heterotrioza dichroa* has vestigial hindwings. Other taxa with very little hindwings are extrapalaearctic and belong to other groups (for example *Trioza diptera*, *Trioza magnicauda*, *Trioza* gr. *obsoleta* and genus *Leptynoptera*).

Also the very short genal cones are rare in Triozidae, but are present in some genera (for example *Heterotrioza portulacoides*, *Eryngiophaga mesomela*, *Bactericera* s. str.).

The parameres remember *Trioza centranthi*.

S. tamaninii resembles *S. galii* for many other characters: habitus, colouration, venulation of forewings, form of penis, female terminalia and egg.

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Addendum - This work was in proof, when the Colleague Dr. P. Lauterer, Brno, wrote me that he collected one male specimen of this species in Czechoslovakia, Northern Slovakia, Belanské Tatry Mountains, Čierná voda valley, m 800-1100, 23.VII.1962. I thank Dr. Lauterer for this interesting notice, that confirms the rarity of the species and enlarges widely its distribution. I fix as *Paratypus* also this specimen, preserved in Brno Museum.